File White Oak Naval Surface Weapons Center

GYPSY MOTH LARVAE SAMPLING PROGRAM, NAVSWC WHITE OAK

Introduction

Aerial spraying to control gypsy moth damage at NAVSWC White Oak was recommended by the U.S. Forest Service and Maryland Department of Agriculture. The biological insecticide, Bt, was applied in 2 applications on 7 May 88 and 14 May 88 over approximately 20 acres. The objective of this sampling program was to ascertain the relative effectiveness of the spraying program by recording larval populations underneath burlap bands placed in spray and control areas.

Methods

Sixteen white oaks and 2 red oaks were wrapped with burlap in 5 sample areas on 26 May 88 and 8 June 88 (Figure 1). A treated and control site were selected and wrapped on 26 May; however, the proximity of the control site to spraying operations adjacent to the Center prompted an additional selection of sample sites 2 weeks later (Table 1). Burlap bands were placed 5 feet above the ground, and attached with a string and folded providing a width less than 1/2 the tree diameter. Wrapped trees were visited weekly and the number of larvae present recorded. Larvae were not removed from the population until the last visit on 23 June 88.

Results and Discussion

Sample area I (sprayed) exhibited the lowest larval counts during the survey period (Figure 2). Sample area II, initially considered a control, experienced increasing larval numbers despite its proximity to a spray area adjacent to the Center. Sample areas III and IV, located within the general spray area, did not receive benefit from the spraying due to their isolated locations. Larval numbers generally increased especially in area IV. This site supported the highest larval populations exceeding 700 per visit. Sample area V, representing a true control site, was located over a mile from any spray areas. Larval numbers increased through 2 site visits and then declined on the last visit. Larval numbers were variable among trees at the same site and, in general, the larger the tree, the larger the resident larval population.

Spraying 2 applications of Bt in early May appeared to significantly reduce gypsy moth larval populations in the treated area versus the control areas. Good control was achieved in part due to optimal spraying conditions. An aerial survey conducted by U.S. Forest Service personnel in late June reported that the defoliation level in the White Oak area was not significant. Relatively high larval populations recorded at control sites suggests an increasing larger spray program for White Oak in the future.

Conclusions and Recommendations

The 1988 gypsy moth spraying program at NAVSWC White Oak was successfully accomplished although certain requirements were not met. Although the use of Bt was effective, continued success of the spray program in the future may require a more potent pesticide (i.e. Dimilin). Costs of the spraying program were higher than anticipated due to the selected mode of application.

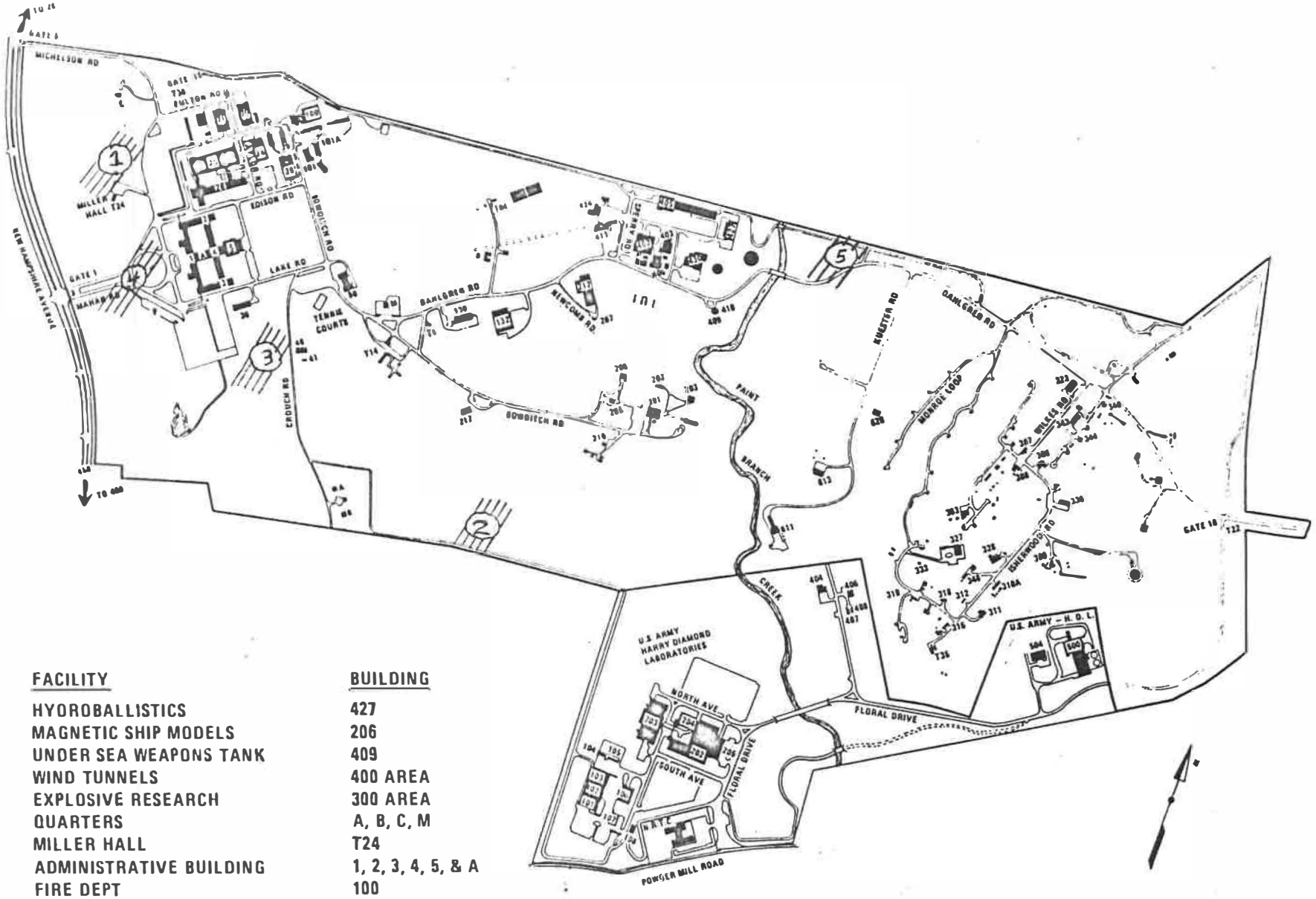
NAVSWC White Oak spraying program requirements will increase in the future. Accordingly, I recommend a formal Cooperative Agreement be developed with the U.S. Forest Service and Maryland Department of Agriculture to facilitate future spraying efforts. Their request to utilize a landing/loading site on Center property should be granted.

Table 1.

GYPSY MOTH LARVAE SURVEY 1988 NAVSWC WHITE OAK

Sample Area	Tree #	dbh	Larval Numbers 26 May 88	8 June 88	15 June 88	23 June 88
1	1	13.0	9	2	5	7
	2	24.0	8	0	1	1
	3	14.5	0	0	0	2
	4	20.5	1	0	2	1
	5	10.5	2	2	0	1
			20	4	8	12
2	1	9.5	2	2	10	12
	2	13.0	0	0	4	9
	3	23.0	1	52	65	80
	4	17.0	2	12	15	54
	5	12.0	4	30	88	57
			9	96	188	212
3	1	27.5		50	95	65
4	1	28.5	--	450	450	450
	2	30.5	--	300	325	375
				750	775	825
5	1	17.0	--	160	180	130
	2	12.5	--	80	160	110
	3	12.0	--	8	32	26
	4	12.5	--	2	7	8
	5	21.7	--	1	4	10
				251	383	284

Figure 1. Gypsy Moth Larvae Sample Areas



FACILITY	BUILDING
HYDROBALLISTICS	427
MAGNETIC SHIP MODELS	206
UNDER SEA WEAPONS TANK	409
WIND TUNNELS	400 AREA
EXPLOSIVE RESEARCH	300 AREA
QUARTERS	A, B, C, M
MILLER HALL	T24
ADMINISTRATIVE BUILDING	1, 2, 3, 4, 5, & A
FIRE DEPT	100
NAVY TACTICAL SUPPORT ACTIVITY	90
GATE 1 (FRONT)	19
GATE 10 (BACK)	T22
VISITOR PARKING	P

NSWC WHITE OAK LABORATORY
Silver Spring, Maryland

FIGURE 2. GYPSY MOTH LARVAL POPULATIONS